SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name Dicyclopentadiene

Stock number: B25208
CAS Number: 77-73-6
EC number: 201-052-9
Index number: 801-044-00-9

1.2 Relevant identified uses of the substance or mixture and uses advised against.

Identified use: SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier: Thermo Fisher (Kandel) GmbH
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com
Informing department: Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS02 flame
Flam. Liq. 2 H225 Highly flammable liquid and vapour.
GHS07 environment
Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xi; Irritant
R36/37/38: Irritating to eyes, respiratory system and skin.
F; Highly flammable
R11: Highly flammable.
N; Dangerous for the environment
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Other hazards that do not result in classification No information known.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS02 GHS07 GHS09

Signal word Danger
Hazard statements
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H332 Harmful if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P303+P361+P333 IF ON SKIN (of hair: Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.
SECTION 3: Composition/information on ingredients
3.1 Substances
CAS# Designation:
77-73-6 Dicyclopentadiene
Identification number(s):
EC number: 201-052-9
Index number: 601-044-00-9

SECTION 4: First aid measures
4.1 Description of first aid measures
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. Seek immediate medical advice.
After skin contact
Instantly wash with water and soap and rinse thoroughly. Seek immediate medical advice.
After eye contact
Rinse opened eye for several minutes under running water. Then consult doctor.
After swallowing
Seek medical treatment.
4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.
4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures
5.1 Extinguishing media
Suitable extinguishing agents: CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
5.2 Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released: Carbon monoxide and carbon dioxide.
5.3 Advice for firefighters
Protective equipment:
Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6: Accidental release measures
6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation. Keep away from ignition sources.
6.2 Environmental precautions:
Do not allow product to reach sewage system or water bodies.
6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation. Prevention of secondary hazards: Keep away from ignition sources.
6.4 Reference to other sections
See Section 7 for information on safe handling. See section 8 for information on personal protection equipment. See Section 13 for information on disposal.

SECTION 7: Handling and storage
7.1 Precautions for safe handling
Keep containers tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation/exhaustion at the workplace. Fumes can combine with air to form an explosive mixture. Keep ignition sources away - Do not smoke.
7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: Store in cool location. Information about storage in one common storage facility: Store away from oxidising agents. Further information about storage conditions: Keep container tightly sealed. Store in cool, dry conditions in well sealed containers.
7.3 Specific end use(s)
No further relevant information available.

SECTION 8: Exposure controls/personal protection
8.1 Control parameters
Components with critical values that require monitoring at the workplace:
77-73-6 Dicyclopentadiene (100,0%)
| AGW (Germany) | Long-term value: 2,7 mg/m³, 0,5 ppm |
| DFG (USA) | Long-term value: 30 mg/m³, 5 ppm |
| TLV (USA) | Long-term value: 27 mg/m³, 5 ppm |

Additional information about design of technical systems: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.2 Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures should be adhered to in handling the chemicals. Keep away from foodstuffs, beverages and food. Instantly remove any soiled and impregnated garments. Wash hands during breaks and at the end of the work. Avoid contact with the eyes and skin. Maintain an ergonomically appropriate working environment.
Breathing equipment: Use breathing protection with high concentrations.
Protection of hands:
Check protective gloves prior to each use for their proper condition. The selection of the suitable gloves does not depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Material of gloves: Nitrile rubber, NBR
Glove thickness: 0.4 mm
Trade name: Dicyclopentadiene

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information
Appearance:
Form: Liquid
Colour: Yellowish
Smell: Not determined
Odour threshold: Not determined
pH-value: Not determined.

Change in condition
Melting point/Melting range: Not determined
Boiling point/Boiling range: 171-173 °C
Sublimation temperature / start: Not determined

Flash point: 26 °C
Inflammability (solid, gaseous) Not determined.
Ignition temperature: 503 °C
Decomposition temperature: Not determined
Self-inflammability: Not determined.

Danger of explosion: Product is not explosive. However, formation of explosive air/steam mixtures is possible.
Critical values for explosion:
Lower: 0.8 Vol %
Upper: 6.3 Vol %
Steam pressure at 20 °C: 3 hPa
Density at 20 °C: 0.982 g/cm³
Relative density: Not determined.
Vapour density: Not determined.
Evaporation rate: Not determined.
Solubility in / Miscibility with
Water: Not miscible or difficult to mix
Partition coefficient (n-octanol/water): Not determined.

SECTION 10: Stability and reactivity

10.1 Reactivity
No information known.

10.2 Chemical stability
Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions
Reacts with strong oxidising agents

10.4 Conditions to avoid
No further relevant information available.

10.5 Incompatible materials:
Oxidising agents

10.6 Hazardous decomposition products:
Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity:
Harmful if inhaled.
Harmful if swallowed.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification:
Oral (LD50) 1255 mg/kg (rat)
Skin irritation or corrosion: Causes skin irritation.
Eye irritation or corrosion: Causes serious eye irritation.
Sensitization: No sensitizing effect known.
Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.
Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
Reproductive toxicity: No effects known.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: May cause respiratory irritation.
Aspiration hazard: No effects known.
Subacute to chronic toxicity: No effects known.
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability: No further relevant information available.
12.3 Bioaccumulative potential: No further relevant information available.

12.4 Mobility in soil: No further relevant information available.

Additional ecological information:
General notes:
Do not allow product to reach ground water, water bodies or sewage system.
Water hazard class 2 (Self-assessment): Hazardous for water.
Danger to drinking water if even small quantities leak into soil.
Also poisonous for fish and plankton in water bodies.
Toxic to aquatic life.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.

12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

12.6 Other adverse effects: No further relevant information available.
SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
Hand over to disposers of hazardous waste. Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

UN-Number
ADR, IMDG, IATA: UN2048

14.2 UN proper shipping name
ADR
IMDG, IATA: DICYCLOPENTADIENE

14.3 Transport hazard class(es)
ADR

Class
Label
3 (F1) Flammable liquids.
3

IMDG, IATA

Class
Label
3 Flammable liquids.
3

Packing group
ADR, IMDG, IATA: III

14.5 Environmental hazards:
Environmentally hazardous substance, liquid

14.6 Special precautions for user
Warning: Flammable liquids.

Kemler Number:
30

EMS Number:
F-E-S-D

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

Transport/Additional information:

ADR

Excepted quantities (EQ):
E1

Limited quantities (LQ):
LQ7

Transport category
3

Tunnel restriction code
D/E

UN "Model Regulation":
UN2048, DICYCLOPENTADIENE, 3, III

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Australian inventory of Chemical Substances: Substance is listed.
Standard for the Uniform Scheduling of Drugs and Poisons: Substance is not listed.
National regulations
Information about limitation of use:
Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.
Classification according to VbF: A II
Water hazard class: Water hazard class 2 (Self-assessment): hazardous for water.
Other regulations, limitations and prohibitive regulations
ELINCIS (European List of Notified Chemical Substances): Substance is not listed.
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006: Substance is not listed.
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.
Substance is not listed.
Annex XIV of the REACH Regulations (requiring Authorisation for use): Substance is not listed.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)